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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/901,046	07/10/2001	Akio Uenishi	50090-308	6444

7590 07/22/2002  
McDermott, Will & Emery  
600 13th Street, N.W.  
Washington, DC 20005-3096

EXAMINER

VU, QUANG D

ART UNIT	PAPER NUMBER
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2811

DATE MAILED: 07/22/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/901,046

Applicant(s)

UENISHI, AKIO

Examiner

Quang D Vu

Art Unit

2811

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 2-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_ 6) ☐ Other: \_\_\_\_

## DETAILED ACTION

### *Drawings*

The proposed drawing correction and/or the proposed substitute sheets of drawings, filed on 05/09/02 have been approved. A proper drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The correction to the drawings will not be held in abeyance.

The Patent and Trademark Office no longer makes drawing changes. See 1017 O.G. 4. It is applicant's responsibility to ensure that the drawings are corrected. Corrections must be made in accordance with the instructions below.

### INFORMATION ON HOW TO EFFECT DRAWING CHANGES

#### 1. **Correction of Informalities -- 37 CFR 1.85**

New corrected drawings must be filed with the changes incorporated therein. Identifying indicia, if provided, should include the title of the invention, inventor's name, and application number, or docket number (if any) if an application number has not been assigned to the application. If this information is provided, it must be placed on the front of each sheet and centered within the top margin. If corrected drawings are required in a Notice of Allowability (PTOL-37), the new drawings **MUST** be filed within the **THREE MONTH** shortened statutory period set for reply in the "Notice of Allowability." Extensions of time may NOT be obtained under the provisions of 37 CFR 1.136 for filing the corrected drawings after the mailing of a Notice of Allowability. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson.

#### 2. **Corrections other than Informalities Noted by Draftsperson on form PTO-948.**

All changes to the drawings, other than informalities noted by the Draftsperson, **MUST** be made in the same manner as above except that, normally, a highlighted (preferably red ink) sketch of the changes to be incorporated into the new drawings **MUST** be approved by the examiner before the application will be allowed. No changes will be permitted to be made, other than correction of informalities, unless the examiner has approved the proposed changes.

### **Timing of Corrections**

Applicant is required to submit acceptable corrected drawings within the time period set in the Office action. See 37 CFR 1.185(a). Failure to take corrective action within the set (or extended) period will result in **ABANDONMENT** of the application.

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 2 – 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent No. 09232516 to Yasushi et al.

Regarding claims 2 and 3, Yasushi et al. teach a semiconductor device, comprising:

- a semiconductor substrate;
- a first insulating film formed on the semiconductor substrate;
- a polysilicon resistor film formed on the first insulating film;
- a second insulating film formed on the resistor film;
- a high heat conductor film consisting of a highly heat-conducting material formed on the second insulating film; and
- a pair of terminal wirings formed on the second insulating film and connected to the resistor film.

Yasushi et al. do not teach a thickness of the high heat conductor film is thicker than a thickness of the resistor film or twice as thick or thicker. Nor does Yasushi et al. teach a high heat conductor film that is twice as thick as the resistor. It would have been obvious to one having ordinary skill in the art at the time the invention was made to find the optimal thickness of the high heat conductor film, since the amount of material in the heat sink will determine the degree of the heat transfer from the desired area. Furthermore, it would have been obvious to alter the size of the heat sink according to the desired amount of heat dissipation.

Regarding claim 4, Yasushi et al. teach a semiconductor device, wherein a width of the high heat conductor film is wider than a width of the resistor film.

Regarding claim 5, Yasushi et al. do not teach a semiconductor device, wherein the high heat conductor film is united with one of the terminal wirings. It would have been obvious to connect one of the terminal wirings to the heat sink, since thermal conductivity can be improved.

Regarding claim 6, Yasushi et al. teach a semiconductor device, comprising:

- a semiconductor substrate;

- a first insulating film formed on the semiconductor substrate;

- a polysilicon resistor film formed on the first insulating film;

- a second insulating film formed on the resistor film;

- a high heat conductor film consisting of a highly heat-conducting material formed on the second insulating film; and

- a pair of terminal wirings formed on the second insulating film and connected to the resistor film,

wherein a thickness of the second insulating film located above the resistor film is thinner than a thickness of the resistor film.

Yasushi et al. do not teach a thickness of the high heat conductor film is thicker than a thickness of the resistor film. It would have been obvious to one having ordinary skill in the art at the time the invention was made to find the optimal thickness of the high heat conductor film, since the size of the heat sink will determine the degree of the heat transfer from the desired area. Furthermore, it would have been obvious to alter the size of the heat sink according to the desired amount of heat dissipation.

#### ***Response to Arguments***

3. Applicant's arguments filed 05/07/02 have been fully considered but they are not persuasive.

It is argued, at page 5 of the Remarks, that Yasushi et al. do not suggest a semiconductor device wherein a thickness of the high heat conductor film is thicker than a thickness of the resistor film. This argument is not convincing because the size of the heat sink will determine the degree of the heat transfer from the desired area. Furthermore, the size of the heat sink can alter according to the desired amount of heat dissipation.

It is argued that Yasushi et al. do not suggest the thickness of the second insulating film is thinner than a thickness of the resistor film. This argument is not convincing because Yasushi et al. teach the thickness of the second insulating film located above the resistor film is thinner than a thickness of the resistor film. It is further argued that the high heat conductor film having a

thickness that is greater than a thickness of the resistor is a critical aspect of the invention. The applicant has not presented any evidence in the disclosure to support this position.

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quang D Vu whose telephone number is 703-305-3826. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on 703-308-2772. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

QVU  
July 12, 2002

Q40

Steven Loh  
Patent Examiner

Steven Loh